Name: Date: Period:

**Ecology Unit**

**Environment** = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What’s in an environment?**

* **Abiotic factors** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parts of the environment
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Biotic factors** = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parts of the environment

**Levels of Organization within the environment**

* **Organism** – one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Population** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the same species in a particular

\_\_\_\_\_\_\_\_\_\_\_\_ at a particular \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Community** – all the different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ living together in a

particular \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at a particular \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Ecosystem** – combination of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ factors

* + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Examples of Ecosystems:**

1. Terrestrial (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Freshwater – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Marine – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

**Wetland** – link between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + 1. Area \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with water for part of

the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + 1. Examples = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    2. Importance = provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

water, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and hold floodwaters, prevent

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wind, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Changes in Communities**

* Succession – predictable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a community over \_\_\_\_\_\_\_\_\_\_
  + Primary – series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that occur in an area where no

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exist

* + - Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Secondary – series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that occur in an area where

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and/or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exist

* + - Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ecology** = study of how \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ interact with each other and their

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Population density** = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ living in a

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ area

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rate
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rate
* **immigration** – new members \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **emigration** – members of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **limiting factors** -- factors that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from reaching its full \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Interactions among living things:**

* **Adaptations --** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and physical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

allowing organisms to live \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Niche --** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of organism in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or how it makes

its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Examples:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it eats, how it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ its

food, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, physical conditions it requires to

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Competition** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contend

for the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Example**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Predation** – 1 organism (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) \_\_\_\_\_\_\_\_\_\_\_\_\_ another organism

(\_\_\_\_\_\_\_\_\_\_\_\_\_) for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Defense strategies**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

covering, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ coloring, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ coloring

* + **Example**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Symbiosis** – close \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between 2 species that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

at least 1

* + **Mutualism** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Example**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Commensalism** -- \_\_\_ species \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the other is not

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - **Example**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Parasitism** – 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ living on or \_\_\_\_\_\_\_\_\_\_\_\_\_\_

(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) another organism (\_\_\_\_\_\_\_\_\_\_\_\_\_) and

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it

* + - **Example**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: Date: Period:

**Ecology Unit KEY**

**Environment** = surroundings

**What’s in an environment?**

* **Abiotic factors** – nonliving parts of the environment
  + water, sunlight, oxygen, temperature, and soil
* **Biotic factors** = living parts of the environment

**Levels of Organization within the environment**

* **Organism** – one organism
  + Example: prairie dog
* **Population** -- organisms of the same species in a particular area at a particular time
  + Example: Prairie dogs in Africa during the monsoon of 2002
* **Community** – all the different populations living together in a particular area at a particular time
  + Example: Prairie dogs, buffalo, antelope, and grass in Africa, 2002
* **Ecosystem** – combination of the communities and the abiotic factors
  + Prairie dogs, buffalo, antelope, and grass in Africa during the monsoon of 2002, with rocks

**Examples of Ecosystems:**

1. Terrestrial (land) – rain forests, deserts, grasslands, forests, tundra, mountains
2. Freshwater – streams, rivers, ponds, and lakes
3. Marine – estuaries, open ocean

**Wetland** – link between land and water

* + 1. Area filled or soaked with water for part of the year
    2. Examples = swamp, marsh, and bog
    3. Importance = provide habitat, filter water, collect and hold floodwaters, prevent erosion, absorb wind, beauty, and recreation

**Changes in Communities**

* Succession – predictable changes in a community over time
  + Primary – series of changes that occur in an area where no soil or organisms exist
    - Examples: Retreated glacial, after volcanic eruption
  + Secondary – series of changes that occur in an area where soil and/or organisms exist
    - Examples: Natural disasters or human interactions (logging, farming)

**Ecology** = study of how organisms interact with each other and their environment

**Population density** = number of organisms living in a defined area

* birth rate
* death rate
* **immigration** – new members joining a population; increases
* **emigration** – members of a population leave; decreases
  + **limiting factors** -- factors that prevent a population from reaching its full potential
    - food, water, shelter, and space

**Interactions among living things:**

* **Adaptations --** behaviors and physical characteristics allowing organisms to live successfully in their environment
* **Niche --** role of organism in habitat or how it makes its living
  + **Examples:** food it eats, how it obtains its food, reproduction, physical conditions it requires to survive
* **Competition** -- organisms with similar requirements contend for the same resources
  + **Example**: pair of eagles flying towards a mouse
* **Predation** – 1 organism (predator) kills another organism (host) for food
  + **Defense strategies**: mimicry, protective covering, false coloring, and warning coloring
  + **Example**: lion hunting zebra
* **Symbiosis** – close relationship between 2 species that benefits at least 1
  + **Mutualism** -- both species benefit
    - **Example**: bumblebee and flower
  + **Commensalism** -- 1 species benefits and the other is not harmed or helped
    - **Example:** Barnacles on the skin of a whale
  + **Parasitism** – 1 organism living on or inside (parasite) another organism (host) and harms it
    - **Example**: Fleas on dogs